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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,947

05/22/2006

Anja Gerhard

14113-00010-US

3744

23416 7590 10/07/2008
CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

EXAMINER

WALFORD, NATALIE K

ART UNIT

PAPER NUMBER

2879

MAIL DATE

DELIVERY MODE

10/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,947	Applicant(s) GERHARD ET AL.	
	Examiner NATALIE K. WALFORD	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/08, 8/06, 5/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the organic electroluminescent device must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10, 12-13, 15, and 17-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Eriyama et al. (US 3).

Regarding claim 1, Eriyama discloses organic electroluminescent device in figure 1 comprising an anode (item 2), a cathode (item 7) and at least one emission layer (item 5) comprising at least one matrix material which is doped with at least one phosphorescent emitter (paragraph 9), characterized in that the emission layer on the anode side is directly adjacent to an electrically conductive layer (item 4).

Regarding claim 2, Eriyama discloses organic electroluminescent device according to Claim 1, characterized in that either the matrix material or the phosphorescent emitter is a low-molecular-weight defined compound having a molecular weight of less than 10,000 g/mol (paragraph 33).

Regarding claim 3, Eriyama discloses organic electroluminescent device according to Claim 2, characterized in that both the matrix material and the phosphorescent emitter are low-molecular-weight defined compounds having a molecular weight of less than 10,000 g/mol (paragraph 33).

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Regarding claim 4, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the electrically conductive layer to which the emission layer on the anode side is adjacent is an organic or organometallic hole-injection layer (see FIG. 1).

Regarding claim 5, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the electrically conductive layer to which the emission layer on the anode side is adjacent is the anode (see FIG. 1).

Regarding claim 6, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that it comprises further layers (items 4 and 6).

Regarding claim 7, Eriyama discloses organic electroluminescent device according to Claim 6, characterized in that the further layers are one or more hole-blocking layers and/or electron-transport layers and/or electron-injection layers (item 6).

Regarding claim 8, Eriyama discloses organic electroluminescent device according to 1, characterized in that the emission layer is directly adjacent to the electron- transport layer without the use of a hole-blocking layer (see FIG. 1).

Regarding claim 9, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the emission layer is directly adjacent to the cathode or the electron-injection layer without the use of a hole-blocking layer and without the use of an electron-transport layer (see FIG. 1).

Regarding claim 10, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that more than one emission layer is present (items 3, 4, and 6).

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Regarding claim 12, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the phosphorescent emitter present is a compound which contains at least one atom having an atomic number of greater than 36 and less than 84 (paragraph 118).

Regarding claim 13, Eriyama discloses organic electroluminescent device according to Claim 12, characterized in that the phosphorescent emitter comprises at least one element selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium (paragraph 118).

Regarding claim 15, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the glass transition temperature T_g of the matrix material is greater than 100°C (paragraph 64).

Regarding claim 17, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the lowest triplet energy of the matrix material is between 2 and 4 eV (see FIG. 1). The Examiner notes that since the matrix material claimed by the Applicant is the same as disclosed by Eriyama, it would inherently have these properties.

Regarding claim 18, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the matrix material is an electron-conducting compound (see FIG. 1). The Examiner notes that since the matrix material claimed by the Applicant is the same as disclosed by Eriyama, it would inherently have these properties.

Regarding claim 19, Eriyama discloses organic electroluminescent device according to Claim 18, characterized in that the matrix material exhibits predominantly reversible reduction or forms predominantly stable free-radical anions (see FIG. 1). The Examiner notes that since the

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matrix material claimed by the Applicant is the same as disclosed by Eriyama, it would inherently have these properties.

Regarding claim 20, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the electron mobility of the matrix material is between 10^1 and $1 \text{ cm}^2/\text{V.s}$ (see FIG. 1). The Examiner notes that since the matrix material claimed by the Applicant is the same as disclosed by Eriyama, it would inherently have these properties.

Regarding claim 21, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the matrix material is ketone, imine, phosphine oxide, phosphine sulfide, phosphine selenide, phosphazene, sulfone or sulfoxide (paragraphs 67-68).

Regarding claim 22, Eriyama discloses organic electroluminescent device according to Claim 21, characterized in that the matrix materials is ketone, phosphine oxide or sulfoxide are selected from the classes of ketones, phosphine oxides and sulfoxides (paragraph 67-68).

Regarding claim 23, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that one or more layers are coated by a sublimation process. The Examiner notes that regarding claim 23, the claim is directed to the method of manufacturing an organic electroluminescent device, in view of an absence of a showing that the method imparts distinctive structural characteristics to the final product, the limitations directed to the method of manufacturing are not germane to the issue of patentability of the device.

Regarding claim 24, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that one or more layers are coated by the organic vapour phase deposition (OVPD) process or with the aid of carrier-gas sublimation. The Examiner notes that regarding claim 24, the claim is directed to the method of manufacturing an organic

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electroluminescent device, in view of an absence of a showing that the method imparts distinctive structural characteristics to the final product, the limitations directed to the method of manufacturing are not germane to the issue of patentability of the device.

Regarding claim 25, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that one or more layers are coated by the LITI (light induced thermal imaging) process. The Examiner notes that regarding claim 25, the claim is directed to the method of manufacturing an organic electroluminescent device, in view of an absence of a showing that the method imparts distinctive structural characteristics to the final product, the limitations directed to the method of manufacturing are not germane to the issue of patentability of the device.

Regarding claim 26, Eriyama discloses organic solar cell which comprises the organic electroluminescent device as claimed in claim 1 cell, characterized in that the structure corresponds to one or more of Claims 1 to 25. The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. Hence, it is not germane to the issue of patentability.

Regarding claim 27, Eriyama discloses organic laser diode which comprises the organic electroluminescent device as claimed in claim 1 diode, characterized in that the structure corresponds to one or more of Claims 1 to 25. The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. Hence, it is not germane to the issue of patentability.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriyama et al. (US PUB 2004/0106006) in Lecloux et al. (US PUB 2003/0096138).

Regarding claim 11, Eriyama discloses organic electroluminescent device according to claim 1, but does not expressly disclose that the emission layer has a layer thickness of 1 to 300 nm, as claimed by Applicant. Lecloux is cited to show an organic electroluminescent device in figure 6 with an emission layer (item 130) that has a thickness of 1 to 300 nm (paragraph 90). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the emission layer have a layer thickness of 1 to 300 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding claim 14, Eriyama discloses organic electroluminescent device according to claim 1, but does not expressly disclose that the degree of doping of the phosphorescent emitter in the matrix is 0.5 to 50%, as claimed by Applicant. Lecloux is cited to show an organic electroluminescent device in figure 6 that has a phosphorescent emitter (item 130) that has been doped between 0.5 to 50% (paragraph 29). Lecloux teaches that having this percentage do not need to be in a solid matrix diluent in order to be effective (paragraph 77).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the degree of doping of the phosphorescent emitter in the matrix is 0.5 to 50% as suggested by Lecloux for the percentage not needing to be in a solid matrix diluent in order to be effective.

Regarding claim 16, Eriyama discloses organic electroluminescent device according to claim 1, characterized in that the matrix material has an absorbance of less than 0.2 in the visible spectral region between 380 nm and 750 nm (see FIG. 1), but does not expressly disclose that the film thickness is 30 nm, as claimed by Applicant. Lecloux is cited to show an organic electroluminescent device in figure 6 with an emission layer (item 130) that has a thickness of 1 to 300 nm (paragraph 90). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the emission layer have a layer thickness of 1 to 300 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

nkW

/Natalie K Walford/

Examiner, Art Unit 2879

/Sikha Roy/

Primary Examiner, Art Unit 2879